# SESSION IV:

## DISASTER MEDICAL OPERATIONS — PART 2

# DISASTER MEDICAL OPERATIONS

## SESSION IV

## DISASTER MEDICAL OPERATIONS—PART 2

**TIME: 2 hours 30 minutes**

**OBJECTIVES**

At the conclusion of this session, the participants will be able to:

1. Perform head-to-toe patient assessments.
2. Select and set up a treatment area.
3. Employ appropriate care for wounds.
4. Identify and treat fractures, sprains, and strains.
5. Take appropriate measures to maintain the public health.

**SCOPE**

- Introduction, Review, And Session Overview
- Organization Of Disaster Medical Operations
- Conducting Head-To-Toe Assessments
- Establishing Treatment Areas
- Treating Burns
- Wound Care
- Treating Fractures, Sprains, And Strains
- Splinting
- Treating Hypothermia
- Treating Frostbite
- Public Heath Considerations
- Session Summary

**TRAINING METHODS**

The lead instructor will begin this session by welcoming the participants to Session IV: Disaster Medical Operations—Part 2, and will introduce the instructors for the session. The instructor will then present a brief review of Disaster Medical Operations— Part 1, covering the "killers" and triage procedures. Next, the instructor will present a brief overview of the topics for the session. This section will end with a presentation of the session learning objectives.

**TRAINING METHODS**
(Continued)

Then the instructor will present an overview of how disaster medical operations are organized and the responsibilties of each operational function

Next, the instructor will explain and demonstrate the procedures for conducting head-to-toe patient assessments using a mannequin. The participants will then be divided into pairs so that they can practice head-to-toe patient assessments under observation.

The instructor will then discuss where to establish a treatment area, and how the treatment area should be organized.

Next, the instructor will describe the treatment of burns, and the care of wounds to avoid infections. Topics will include the difference between bandages and dressings, and bandaging techniques. The instructor will demonstrate using dressings to control bleeding, and bandaging techniques using the mannequin.

The next section of this session will deal with the treatment of fractures, sprains, and strains. An exercise will give the participants the opportunity to practice applying splints. The exercise will be followed by segments on how to diagnose and treat hypothermia and frostbite.

Finally, the instructor will present the public health considerations for disaster medical operations, including sanitation, hygiene, and water purification. This explanation will conclude with a question-and-answer session.

**REFERENCES**

*Community Emergency Response Team* Instructor Guide
*Community Emergency Response Team* Participant Handbook
Visuals 4.1 through 4.23

**EQUIPMENT**

In addition to the equipment listed at the front of this Instructor Guide, you will need the following equipment for this session:

- 1 mannequin.
- 1 box of latex examination gloves.
- 1 box of 4 × 4 bandages.

**EQUIPMENT**
(Continued)

- 1 triangular bandage.
- 3 rolls of roller gauze.
- 2 towels.
- Note cards.
- Masking tape.

**NOTES**

A suggested time plan for this unit is as follows:

Introduction, Review, And Session Overview.....5 minutes
Organization Of Disaster Medical Operations.....5 minutes
Conducting Head-To-Toe Assessments.....25 minutes
Exercise: Conducting Head-To-Toe Assessments
Establishing Treatment Areas.....15 minutes
Treating Burns.....15 minutes
Wound Care.....20 minutes
Treating Fractures, Sprains, and Strains.....15 minutes
Splinting.....25 minutes
Exercise: Splinting
Treating Hypothermia.....5 minutes
Treating Frostbite.....5 minutes
Public Health Considerations.....5 minutes
Session Summary.....5 minutes

**Total Time: 2 hours 30 minutes**

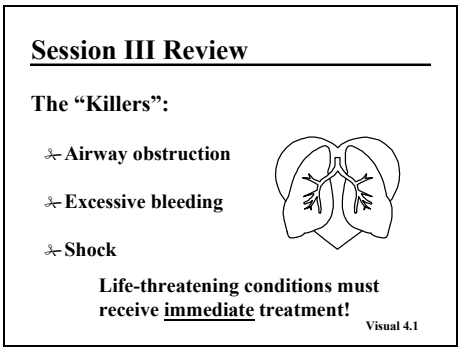
## INSTRUCTOR NOTES

*Total Unit:*
*2 hours 30 minutes*

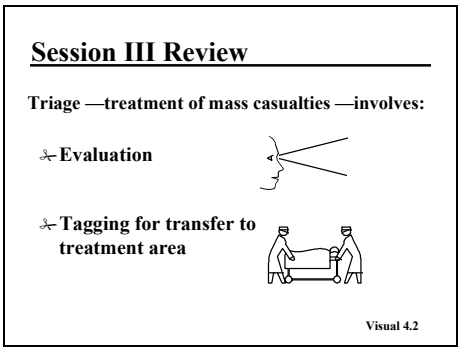
*Total Topic:*
*5 minutes*

*Participant Handbook, page PH IV-3.*

*Visual 4.1*




*Visual 4.2*




## CONTENT/ACTIVITY

### SESSION IV: DISASTER MEDICAL OPERATIONS PART 2

### INTRODUCTION, REVIEW, AND SESSION OVERVIEW

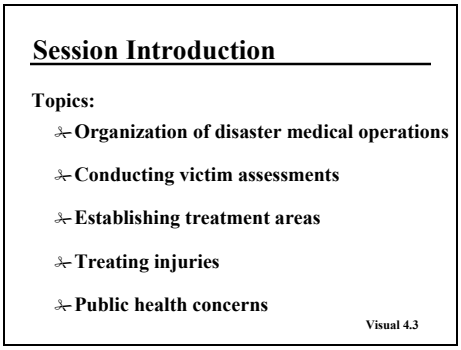
- Welcome the participants to Session IV of the CERT training program.
- Introduce the instructors for this session and ask any new instructors to briefly describe their experience in medical operations.
- Review the main points from Session III:
  - Airway obstruction, excessive bleeding, and shock are "killers." Victims with signs of these life-threatening conditions must receive *immediate* treatment.
  - Triage has proven to be an effective way to evaluate and prioritize the treatment of mass casualties in a disaster situation.

## INSTRUCTOR NOTES

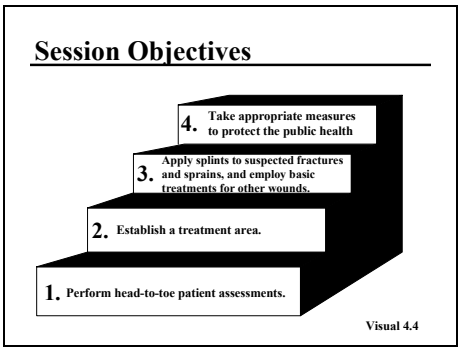
## CONTENT/ACTIVITY

### INTRODUCTION, REVIEW, AND SESSION OVERVIEW (Continued)

*Visual 4.3*




- Introduce this session by telling the participants that this session will provide them with the information they need to perform treatment once the victims have been transported to the treatment area.
- Explain that the session will cover:
  - Organization of disaster medical operations.
  - Conducting victim assessments.
  - Establishing treatment areas.
  - Treating wounds, fractures, sprains, and other common injuries.
  - Public health concerns related to sanitation, hygiene, and water purification.
- Emphasize the need for practice by telling the participants that they will have the opportunity to practice many of the treatment techniques that they will learn.

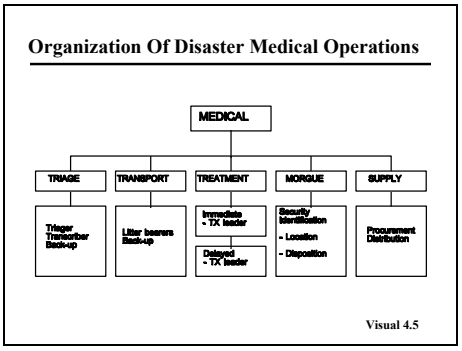
| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| *Visual 4.4*<br>  <br> | **SESSION OBJECTIVES**<br>▪ Tell the group that at the end of this unit, they will be able to:<br>• Perform head-to-toe patient assessments.<br>• Establish a treatment area.<br>• Apply splints to suspected fractures and sprains, and employ basic treatments for other wounds.<br>• Take appropriate sanitation measures to protect the public health.<br>▪ Tell the group that the next section will cover the organization of disaster medical operations.<br>**SUMMARY AND TRANSITION**<br>▪ Ask the group if anyone has any questions from the last session.<br>▪ Ask if anyone has a question about what will be covered in this session. |
| **?** *Discussion question.* | |
| **YOUR NOTES:** | |

## INSTRUCTOR NOTES

*Total Topic: 5 minutes*

*Participant Handbook, page PH IV-4.*

*Visual 4.5*




*Total Topic: 30 minutes*

*Participant Handbook, page PH IV-7.*

## CONTENT/ACTIVITY

### ORGANIZATION OF DISASTER MEDICAL OPERATIONS

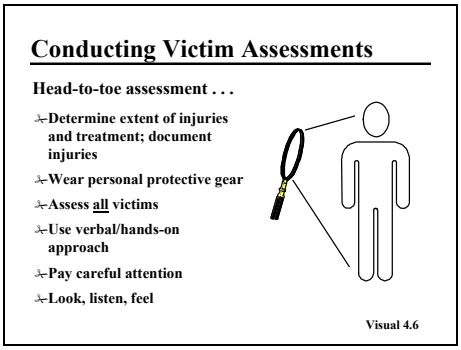
- Display the organization chart for Disaster Medical Operations. Point out that there are five major subfunctions:
  - Triage
  - Transport
  - Treatment
  - Morgue
  - Supply
- Explain that the last session dealt with the procedures conducted in the Triage subfunction, and that this session will focus on the Treatment subfunction.

### CONDUCTING HEAD-TO-TOE ASSESSMENTS

- Tell the group that one of the first steps that they will take when working with a victim is to conduct a triage, then do a size-up—that is, conduct a thorough head-to-toe assessment of the victim's condition. This can be done in place in a lightly damaged building. If the building is more heavily damaged, the victim should be moved to a safe zone or to the treatment area for the head-to-toe assessment.

## INSTRUCTOR NOTES

*Visual 4.6*




## CONTENT/ACTIVITY

### CONDUCTING HEAD-TO-TOE ASSESSMENTS (Continued)

- Explain that the objectives of a head-to-toe assessment are to:
  - Determine, as clearly as possible, the extent of injuries.
  - Determine what type of treatment is needed.
  - Document injuries.
- Stress the importance of wearing safety equipment when conducting head-to-toe assessments.

  Instructor Note: (Field Conditions) If you wish, suggest that if the medical team runs out of latex gloves, they can use rubber gloves and sterilize them between victims in a bucket of bleach-and- water solution (1 part bleach to 10 parts water).
- Explain that head-to-toe assessments should be:
  - Conducted on all victims, even those that are awake.
  - Verbal (if the patient is able to speak).
  - Hands-on.

  Tell the participants that, whenever possible, they should ask the person about any injuries, pain, bleeding, or other symptoms. Stress that, if the victim is conscious, they should always ask permission to conduct the assessment. The victim has the right to refuse treatment. Then:
  - Pay careful attention.
  - Look, listen, and feel for anything unusual.

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|

## CONDUCTING HEAD-TO-TOE ASSESSMENTS (Continued)

- Emphasize the importance of talking with the conscious patient to reduce anxiety.

*Participant Handbook, page PH IV-8.*

- Explain how to document victims during triage (the number of people tagged Immediate, Delayed, and Dead) and their location. Refer the participants to their Participant Handbooks. Also explain to the group how useful such information can be to professional responders.

*Demonstrate—either on a mannequin or on another instructor—the procedure for conducting a head-to-toe assessment.*

- Stress the need for conducting head-to-toe assessments systematically, checking body parts from the top to the bottom in the following order:

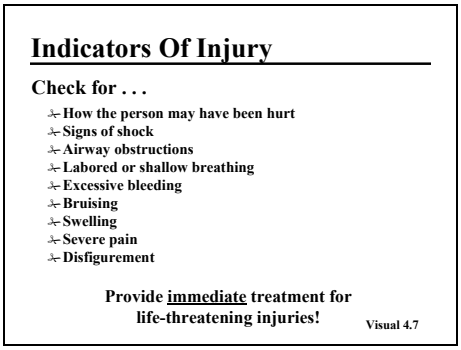
  1. Head
  2. Neck
  3. Shoulders
  4. Chest
  5. Arms
  6. Abdomen
  7. Pelvis
  8. Legs
  9. Back

  Explain that completing the assessment in the same way every time will make the procedure quicker and more accurate.

  Tell the participants to always perform an entire assessment before beginning any treatment. Also tell them to treat victims as if they have a spinal injury until they are certain they do not.

## INSTRUCTOR NOTES

*Visual 4.7*




*Emphasize that the participants should pay careful attention to how people have been hurt (the mechanism of injury) because it provides insight to probable injuries suffered.*

## CONTENT/ACTIVITY

### CONDUCTING HEAD-TO-TOE ASSESSMENTS (Continued)

- Tell the participants that they should look for anything that might indicate an injury (that is, anything out of the ordinary). Watch especially for:
  - How the person may have gotten hurt (i.e., the mechanism of injury) to help determine injuries.
  - Signs of shock.
  - Airway obstructions.
  - Labored, shallow, or otherwise difficult breathing.
  - Excessive bleeding.
  - Bruising.
  - Swelling.
  - Severe pain.
  - Disfigurement.
- Remind the group to check their own hands as they examine the victim for signs of patient bleeding.
- Tell the group that after completing the assessment, they should provide immediate treatment for "**I**'s". Remind them that they learned and practiced the treatments for airway obstructions, excessive bleeding, and shock during triage in the previous session. They can reclassify victims if necessary. Also, as they record medical information, they should document who the person is if they can.

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|

*Participant Handbook, page PH IV-10.*

**CLOSED HEAD, NECK AND SPINAL INJURIES**

- Explain that when conducting head-to-toe assessments, rescuers may come across victims who have or may have suffered closed head, neck, or spinal injuries. (Define a closed head injury for the participants as a concussion-type injury, as opposed to a laceration, although lacerations can be an indication that a closed head injury has been suffered.) Tell the group that the main objective when CERT members encounter suspected injuries to the head or spine is to *do no harm*. They should minimize movement of the head and spine, while treating any other life-threatening conditions.

- Tell the participants that the signs of a closed head, neck, or spinal injury most often include:

  - Change in consciousness.
  - Inability to move one or more body parts.
  - Severe pain or pressure in head, neck, or back.
  - Tingling or numbness in extremities.
  - Difficulty breathing or seeing.
  - Heavy bleeding, bruising, or deformity of the head or spine.
  - Blood or fluid in the nose or ears.
  - Bruising behind the ear.
  - "Raccoon" eyes (bruising around eyes).
  - Seizures.

## INSTRUCTOR NOTES

## CONTENT/ACTIVITY

**CLOSED HEAD, NECK AND SPINAL INJURIES**
(Continued)

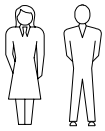
- Nausea or vomiting.
- Victim found under collapsed building material or heavy debris.

*Participant Handbook, page PH IV-11.*

Refer the participants to the symptoms listed in their Participant Handbooks.

- Stress that if the victim is exhibiting any of these signs, he or she should be treated as having a closed head, neck, or spinal injury.
- Explain that the only treatment CERT members should provide for a suspected closed head, neck, or spinal injury is called *in-line stabilization*. In-line stabilization means keeping the spine in a straight line.
- Point out that, ideally, in-line stabilization is done by fitting a cervical collar around the victim's neck. However, in a disaster situation, ideal equipment is rarely available, so the CERT members may need to be creative by:
  - Looking for materials that can be used as a backboard—a door, desktop, building materials—anything that might be available.
  - Looking for items that can be used to stabilize the head on the board—towels, draperies, or sandbags—by tucking them snugly on either side of the head to immobilize it.
- Caution the participants that whenever possible they should defer closed head, neck, and spinal injuries to trained emergency medical personnel. Again, remind them that the goal when such injuries are suspected is to *do no harm*.

*Demonstrate "creative" in-line stabilization, using a table and towels.*

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| | **CLOSED HEAD, NECK AND SPINAL INJURIES** (Continued)<br><br>▪ Ask the group if anyone has any questions about how to conduct head-to-toe assessments. |
|  <br>*Total Exercise: 10 minutes* | **EXERCISE: CONDUCTING HEAD-TO-TOE ASSESSMENTS**<br><br>▪ <u>Instructor Note</u>: This exercise allows the participants to practice conducting head-to-toe assessments on each other. Follow the steps below to facilitate this exercise: |
|  <br>*Pair off the participants.* | 1. Divide the participants into pairs.<br><br>2. Ask the person on the right to be the victim and the person on the left to be the rescuer.<br><br>3. Ask the victims to lie on the floor on their backs and close their eyes. |
| *Observe each group and correct improper techniques.* | 4. Ask the rescuer to conduct a head-to-toe assessment on the victim following the procedure demonstrated earlier.<br><br>5. After the rescuer has made at least two observed head-to-toe assessments, ask the victim and rescuer to change roles.<br><br>6. Allow each new rescuer at least two observed head-to-toe assessments.<br><br>7. After all participants have had the opportunity to be the rescuer, discuss any problems or incorrect techniques that may have been initially demonstrated. Explain how to avoid the problems in disaster situations. |

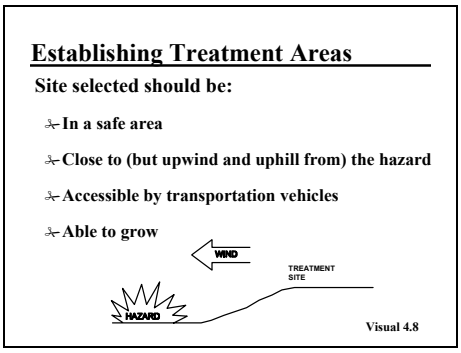
| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| | **SUMMARY AND TRANSITION** |
| **?** *Discussion question.* | ▪ Ask if anyone has any additional questions about conducting head-to-toe assessments.<br>▪ Tell the group that next they will learn where and how to set up a treatment area. |
| **YOUR NOTES:** | |

## INSTRUCTOR NOTES

*Total Topic: 15 minutes*

*Participant Handbook, page PH IV-13.*

*Visual 4.8*




## CONTENT/ACTIVITY

### ESTABLISHING TREATMENT AREAS

- Emphasize that because time is critical after a disaster, CERT medical operations personnel will need to select a site and set up a treatment area as soon as casualties are confirmed. The treatment area is the location where the most advanced medical care possible will be given to victims. The site selected should be:
  - In a safe area, free of hazards and debris.
  - Close to, but upwind and uphill from, the hazard zone(s).
  - Accessible by transportation vehicles (ambulances, trucks, helicopters, etc.).
  - Able to grow.

### TREATMENT AREA LAYOUT

- Stress that the treatment area must be protected and clearly delineated using a ground cover or tarp, and that signs should identify the sub-divisions of the area:
  - "I" for Immediate care.
  - "D" for Delayed care.
  - "DEAD" for the morgue.

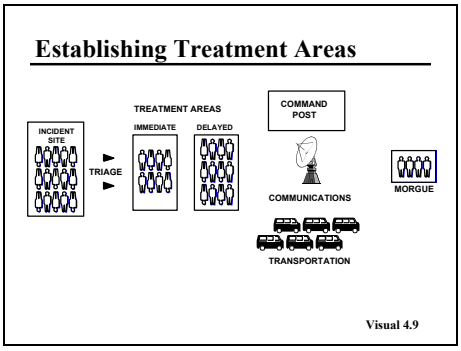
## INSTRUCTOR NOTES

## CONTENT/ACTIVITY

**TREATMENT AREA LAYOUT** (Continued)

- Explain that the "I" and "D" divisions should be relatively close to each other, to allow:
  - Verbal communication between workers in the two areas.
  - Shared access to medical supplies (which should be cached in a central location).
  - Easy transfer of patients whose status has changed.
- Add that the morgue site should be secure, and away from and not visible from the medical treatment areas.

*Visual 4.9*




- Explain that patients in the treatment area should be positioned in a head-to-toe configuration, with two to three feet between victims. This system will provide:
  - Effective use of space.
  - Effective use of available personnel. (As a worker finishes one head-to-toe assessment, he or she turns around and finds the head of the next patient.)

**TREATMENT AREA ORGANIZATION**

- Tell the participants that the CERT team must assign division leaders to maintain control in each of the medical treatment areas. These division leaders will:
  - Ensure orderly victim placement.
  - Direct assistants to conduct head-to-toe assessments.

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|

**TREATMENT AREA ORGANIZATION**
(Continued)

- Emphasize the need for thorough documentation of victims in the treatment area, including:
  - Available identifying information.
  - Description (age, sex, body build, height, weight).
  - Clothing.
  - Injuries.
  - Treatment.
  - Transfer location.

**TREATMENT AREA PLANNING**

- Finally, point out the obvious need for advance planning before disaster strikes, including:
  - Roles of personnel assigned to the treatment area.
  - Availability of set-up equipment needed, such as ground covers/tarps and signs for identifying divisions (immediate, delayed, morgue).
- Recommend strongly that the participants take part in practice exercises so that they can develop a good operational plan and practice rapid treat-ment area setup.

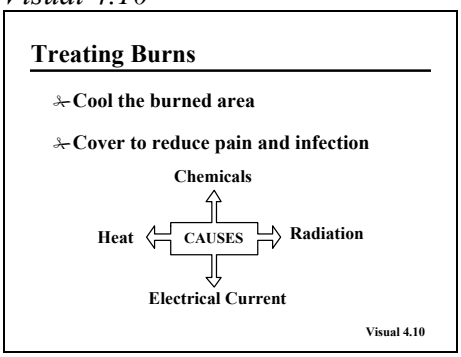
| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| | **SUMMARY AND TRANSITION** |
| **?** *Discussion question.* | ▪ Ask the group if anyone has any questions about treatment area site selection or organization.<br>▪ Tell the participants that the remainder of this session will deal with treatment of injuries and public health considerations within the treatment area. |
| **YOUR NOTES:** | |

## INSTRUCTOR NOTES

*Total Topic:*
*15 minutes*

*Participant Handbook, page PH IV-16.*

*Visual 4.10*



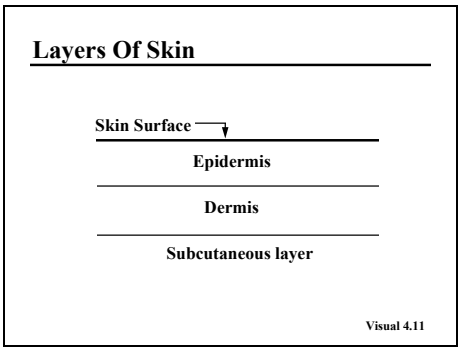

## CONTENT/ACTIVITY

### TREATING BURNS

- Tell the group that the objectives of first aid treatment for burns are to:
  - Cool the burned area.
  - Cover to reduce pain and the risk of infection (by keeping fluids in and germs out).
- Explain that burns may be caused by heat, chemicals, electrical current, and radiation. The severity of a burn depends on the:
  - Temperature of the burning agent.
  - Period of time that the victim was exposed.
  - Area of the body that was affected.
  - Size of the area burned.
  - Depth of the burn.

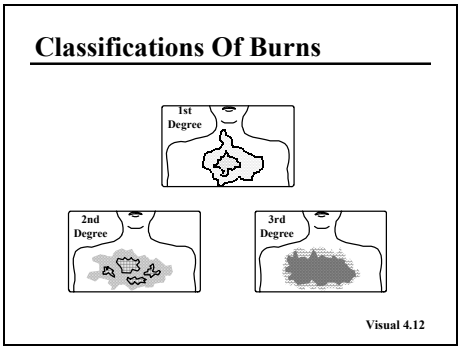
## INSTRUCTOR NOTES

*Visual 4.11*




*Participant Handbook, page PH IV-17.*

*Visual 4.12*




## CONTENT/ACTIVITY

**BURN CLASSIFICATIONS**

- Continue by explaining that the skin has three layers:
  - The *epidermis*, or outer layer of skin, contains nerve endings and is penetrated by hairs.
  - The *dermis*, or middle layer of skin, contains blood vessels, oil glands, hair follicles, and sweat glands.
  - The *subcutaneous layer*, or innermost layer, contains blood vessels and overlies the muscle and skin cells.

  Depending on the severity, burns may affect all three layers of skin.

- Refer the participants to the chart in their Participant Handbooks. Tell the group that burns are classified as first-, second-, or third-degree depending on their severity.

- Use the visual to describe the classification, skin layers affected, and signs of each type of burn.

## INSTRUCTOR NOTES

*Participant Handbook, page PH IV-18.*

## CONTENT/ACTIVITY

**BURN TREATMENT** (Continued)

- Refer the group to their Participant Handbooks for a list of guidelines for treating burns. Review the guidelines with the group:

  - Remove the victim from the burning source. Put out any flames and remove smoldering clothing.

  - If skin or clothing is still hot, cool them by immersing in cool water for not more than 1 minute or covering with clean compresses that have been wrung out in cool water. Cooling sources include water from the bathroom or kitchen; garden hose; and soaked towels, sheets, or other cloths. For third-degree burns, do *not* apply water except to put out flames. Treat all victims of third-degree burns for shock.

  - Cover loosely with dry, sterile dressings to keep air out, reduce pain, and prevent infection.

  - Elevate burned extremities higher than the heart.

  - Do *not:*

    - Use ice. Ice causes vessel restriction.
    - Apply antiseptics, ointments, or other remedies.
    - Remove shreds of tissue, break blisters, or remove adhered particles of clothing (cut burned-in clothing around the burn.)

  Instructor Note: Any ointment or salve will hold heat in the burn area and later have to be scrubbed off.

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| | **BURN TREATMENT** (Continued)<br><br>▪ Caution the group that younger and older persons, and persons with severe burns, are more susceptible to hypothermia. Therefore, rescuers should use caution when applying cool dressings on such persons. A rule of thumb is do not cool more than 15 percent of the body surface area (the size of one arm) at once, to prevent hypothermia.<br><br>**SUMMARY AND TRANSITION** |
| **?** *Discussion question.* | ▪ Ask if anyone has any questions about the treatment for burns.<br><br>▪ Explain that the in next section, the participants will learn to treat other injuries that are common after disasters:<br><br>• Lacerations<br>• Amputations and impaled objects<br>• Fractures, sprains, and strains<br>• Nasal injuries<br>• Hypothermia<br>• Frostbite |
| **YOUR NOTES:** | |

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| *Total Topic: 20 minutes* | **WOUND CARE** |
| *Participant Hand-book, page PH IV-19.* | ▪ Tell the group that the objectives of first aid treatment for wounds are to:<br>• Control bleeding.<br>• Prevent secondary infection. |
| *Visual 4.13*<br>**Wound Care**<br>**The procedures are . . .**<br>✂ **Control bleeding**<br>✂ **Prevent secondary infection**<br>✂ **Clean wound —don't scrub**<br>✂ **Apply dressing and bandage**<br>**Visual 4.13** | ▪ Add the reminder that treatment for controlling bleeding was covered during the last session. Explain that cleaning and bandaging will help to control infection—that is what this section will focus on. |
| *Demonstrate the procedure for cleaning wounds using the mannequin or another instructor.* | ▪ Demonstrate that wounds should be cleaned by irrigating with water, flushing with a mild concentration of soap and water, then irrigating with water again.<br>▪ Emphasize that the participants should *not* scrub the wound. Mention that a bulb syringe or hypodermic syringe is useful for irrigating wounds.<br>▪ Tell the group that, when the wound is thoroughly cleaned, they will need to apply a dressing and bandage to help keep the wound clean.<br>▪ Explain the difference between a dressing and a bandage:<br>• A dressing is applied directly to the wound.<br>• A bandage holds the dressing in place. |

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|

## WOUND CARE (Continued)

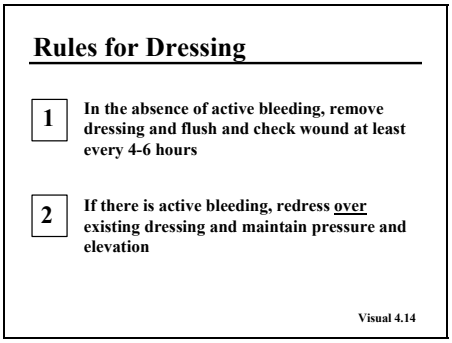
*Demonstrate the correct procedure for dressing and bandaging a wound.*

- Explain that to dress and bandage a wound, the participants should:
  - Irrigate the wound with cool, clear water, flush with a mild concentration of soap and water, then irrigate with water again.
  - Apply a sterile dressing directly over the wound.
  - Apply a bandage to hold it in place.

*Demonstrate some techniques for tying a bandage if no tape is available.*

- Point out that, if a wound is still bleeding, the bandage should place enough pressure on the wound to help control bleeding without interfering with circulation.

*Visual 4.14*



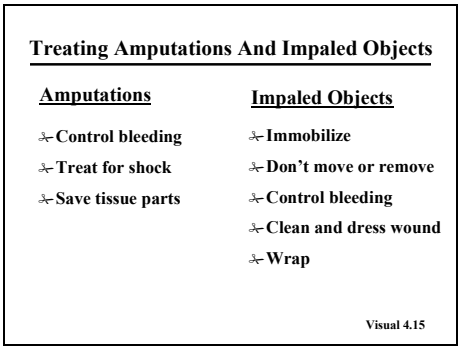

- Present the following rules for dressing and bandages:
  - In the absence of active bleeding, dressings must be removed and the wound must be flushed and checked for signs of infection at least every 4 to 6 hours.

    Signs of possible infection include:
    - Swelling around the wound site.
    - Discoloration.
    - Discharge (pus) from the wound.
    - Red striations from the wound site.
  - If there is active bleeding (dressing is soaked with blood) redress over the existing dressing and maintain pressure and elevation. This is to control bleeding.
- If necessary based on reassessment, change treatment priority.

## INSTRUCTOR NOTES

*Participant Handbook, page PH IV-20.*

*Visual 4.15*




## CONTENT/ACTIVITY

### AMPUTATIONS AND IMPALED OBJECTS

- Emphasize that the main treatments for an amputation (the traumatic severing of a limb or other body part) are to:
  - Control bleeding.
  - Treat for shock.

Instructor Note: Explain that very heavy bleeding (and hence the need for a tourniquet) is actually more likely with a partial amputation than with a complete amputation.

- Stress that when the severed body part can be located, CERT members should:
  - Save tissue parts, wrapped in clean material and placed in a plastic bag, if available.
  - Keep the tissue parts cool.
  - Keep the severed part with the victim.
- Tell the group that they may also encounter some victims who have foreign objects lodged in their bodies—usually as the result of flying debris during the disaster.
- Explain that, when a foreign object is impaled in a patient's body, the participants should:
  - Immobilize the affected body part.
  - *Not* attempt to move or remove the object, unless it is obstructing the airway.

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| | **AMPUTATIONS AND IMPALED OBJECTS** (Continued)<br>• Try to control bleeding at the entrance wound without placing undue pressure on the foreign object.<br>• Clean and dress the wound. Wrap bulky dressings around the object to keep it from moving.<br>**SUMMARY AND TRANSITION** |
| **?** *Discussion question.* | ▪ Ask if anyone has any questions about wound care.<br>▪ Tell the participants that the next session will address treatment for fractures, sprains, and strains. |
| **YOUR NOTES:** | |

## INSTRUCTOR NOTES

*Total Topic: 15 minutes*

*Participant Handbook, page PH IV-21.*

*Visual 4.16*

**Treating Fractures, Sprains, And Strains**

- **Objective: Immobilize the injury and joints above and below the injury site**
- **Treatment depends on type of injury**

**Visual 4.16**

*Participant Handbook, page PH IV-22.*

## CONTENT/ACTIVITY

### TREATING FRACTURES, SPRAINS, AND STRAINS

- Tell the group that the objective when treating a suspected fracture, sprain, or strain is to immobilize the injury and the joints immediately above and below the injury site.
- Point out that the treatment depends on whether the type of injury is a fracture, a sprain, or a strain. It would be beneficial, therefore, to discuss some of the different types of injuries.

### FRACTURES

- Explain that a fracture is a complete break, a chip, or a crack in a bone. There are several types of fractures (refer the participants to the illustrations in their Participant Handbooks):
  - *A closed fracture* is a broken bone with no associated wound. First aid treatment for closed fractures may require only splinting.
  - *An open fracture* is a broken bone with some kind of wound that allows contaminants to enter into or around the fracture site.
- Emphasize that open fractures are more dangerous because of the risk of severe bleeding and infection. Therefore, they are a higher priority and need to be checked more frequently.

## INSTRUCTOR NOTES

*Visual 4.17*

**Treating An Open Fracture**

**DO NOT . . .**

- **Draw exposed bones back into tissue**
- **Irrigate wound**

**DO . . .**

- **Cover wound**
- **Splint fracture without disturbing wound**
- **Place moist 4 x 4 bandage over bone end to prevent drying**

**Visual 4.17**

*Participant Handbook, page PH IV-23.*

## CONTENT/ACTIVITY

**FRACTURES** (Continued)

- Stress that when treating an open fracture:
  - Do *not* draw the exposed bone ends back into the tissue.
  - Do *not* irrigate the wound. Cover the wound with a sterile dressing.
  - Splint the fracture without disturbing the wound.
  - Place a moist 4 x 4 bandage over the bone end to keep it from drying out.

  Explain that splinting procedures will be covered later in this session.

- Tell the group that closed fractures may be described by the degree of displacement of the bone fragments. (Refer the participants to the illustrations in their Participant Handbooks.) Explain that if the limb is angled, then there is a *displaced fracture*.

- Explain that *nondisplaced fractures* are difficult to identify, with the main signs being pain and swelling. Stress that the participants should treat a suspected fracture as a fracture until professional treatment is available.

## INSTRUCTOR NOTES

*Participant Handbook, page PH IV-23.*

*Participant Handbook, page PH IV-24.*

*Visual 4.18*

**Signs Of Sprain**

**Check for . . .**

- **Tenderness at injury site**
- **Swelling and/or bruising**
- **Restricted use or loss of use**

**Immobilize and elevate . . . do <u>not</u> treat!**

**Visual 4.18**

## CONTENT/ACTIVITY

### DISLOCATIONS

- Tell the group that dislocations are another common injury in emergencies.
- Explain that a dislocation is an injury to the ligaments around a joint that is so severe that it results in separation of the bone from its normal position in a joint.
- Tell the participants that the signs of a dislocation are similar to those of a fracture, and that a suspected dislocation should be treated like a fracture.
- Stress that the participants should *not* try to relocate a suspected dislocation. They should immobilize the joint until professional medical help is available.

### SPRAINS AND STRAINS

- Explain that a sprain involves a stretching or tearing of ligaments at a joint and is usually caused by stretching or extending the joint beyond its normal limits.
- Point out that a sprain is considered a partial dislocation, although the bone either remains in place or is able to fall back into place after the injury.
- Tell the group that the most common signs of a sprain are:
  - Tenderness at the site of the injury.
  - Swelling and/or bruising.
  - Restricted use, or loss of use.

## INSTRUCTOR NOTES

## CONTENT/ACTIVITY

**SPRAINS AND STRAINS** (Continued)

- Remind the group that the signs of a sprain are similar to those of a nondisplaced fracture. Therefore, they should *not* try to treat the injury other than by immobilization and elevation.
- Tell the group that a strain involves a stretching and/or tearing of muscles or tendons. Strains most often involve the muscles in the neck, back, thigh, or calf.
- Point out that in some cases, strains may be difficult to distinguish from sprains or fractures. When uncertain whether an injury is a strain, sprain, or fracture, treat the injury as if it is a fracture.
- Ask if anyone has any questions about sprains or strains.

*Participant Handbook, page PH IV-25.*

*Visual 4.19*

**Nasal Injuries**

- **Causes:**
  - **Blunt force**
  - **Skull fracture**
  - **Non-trauma-related conditions**
- **Blood loss can lead to shock**
- **Victims may become nauseated and vomit if they swallow blood**

**Visual 4.19**

**NASAL INJURIES**

- Tell the group that bleeding from the nose can be caused by:
  - Blunt force to the nose.
  - Skull fracture.
  - Non-trauma-related conditions such as sinus infections, high blood pressure, and bleeding disorders.
- Caution the group that a large blood loss from a nosebleed can lead to shock and that actual blood loss may not be evident because the victim will swallow some amount of blood.

**NASAL INJURIES** (Continued)

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| | ▪ Add also that victims who have swallowed large amounts of blood may become nauseated and vomit. |
| *Demonstrate the correct procedures on the mannequin.* | ▪ Demonstrate the methods for controlling nasal bleeding:<br>• Pinching the nostrils together.<br>• Putting pressure on the upper lip just under the nose. |
| | ▪ Tell the participants that while treating for nosebleeds, they should:<br>• Have the victim sit with the head slightly forward so that blood trickling down the throat will not be breathed into the lungs. Do not put the head back.<br>• Ensure that the victim's airway remains open.<br>• Keep the victim quiet. Anxiety will increase blood flow. |
| | **SUMMARY AND TRANSITION** |
| **?** *Discussion question.* | ▪ Ask if anyone has any questions about any of the injuries covered to this point in the session. |
| | ▪ Tell the group that the next area that they will learn is splinting. They will learn:<br>• What types of materials can be used for splints.<br>• How to apply splints. |

## INSTRUCTOR NOTES

*Total Topic: 25 minutes*

*Participant Handbook, page PH IV-26.*

*Demonstrate the correct procedures for splinting:*
- *Hands and fingers.*
- *The upper arm.*
- *The lower leg.*

*Visual 4.20*

**Guidelines For Splinting**

| | |
|---|---|
| 1 | **Support injured area** |
| 2 | **Splint injury in position you find it** |
| 3 | **Don't try to realign bones** |
| 4 | **Check for color, warmth, and sensation** |

Visual 4.20

## CONTENT/ACTIVITY

### SPLINTING

- Explain that splinting is the most common procedure for immobilizing an injury.
- Point out that cardboard is the material typically used for "makeshift" splints but a variety of materials can be used, including:
  - *Soft materials.* Towels, blankets, or pillows, tied with bandaging materials or soft cloths.
  - *Rigid materials.* A board, metal strip, folded magazine or newspaper, or other rigid item.

  Add that *anatomical splints* may also be created by securing a fractured bone to an adjacent unfractured bone. Anatomical splints are usually reserved for fingers and toes but, in an emergency, legs may also be splinted together.

  Instructor Note: Soft materials should be used to fill the gap between the splinting material and the body part.
- Demonstrate the correct procedures for splinting. During the demonstration, be sure to point out the guidelines for splinting:
  - Support the injured area above and below the site of the injury, including the joints.
  - If possible, splint the injury in the position you find it.
  - Don't try to realign bones or joints.
  - After splinting, check for proper circulation (warmth, feeling, and color).

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| | **SPLINTING** (Continued)<br><br>Instructor Note: Advise participants that with this type of injury there will be swelling. They should remove restrictive clothing, shoes, and jewelry when necessary to prevent these items from acting as tourniquets.<br><br>▪ Ask if anyone has any questions about splinting procedures. |
|  <br>*Total Exercise: 15 minutes*<br><br>*Pair off the participants.*<br><br>*Use cardboard and gauze provided by the participants.*<br><br>*Observe each group and correct improper technique. Be sure to check for bandages that are too tight or too loose.* | **EXERCISE: SPLINTING**<br><br>▪ Instructor Note: This exercise allows the participants to practice the procedures for splinting on each other. Follow the steps below to facilitate this exercise:<br><br>1. Divide the participants into pairs. Ask the participants to switch partners from the previous exercise.<br><br>2. Ask one person to be the victim and one person to be the rescuer.<br><br>3. Ask the victims to lie on the floor on their backs or sit in a chair.<br><br>4. Ask the rescuer to apply a splint on the victim's upper arm using the procedure demonstrated earlier. Then ask the rescuers to apply a splint to the victim's lower leg.<br><br>5. After the rescuer has made several observed attempts at splinting, ask the victim and the rescuer to change roles.<br><br>6. Allow each new rescuer at least one observed attempt to apply the splint.<br><br>**EXERCISE: SPLINTING** (Continued) |

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| | 7. After all participants have had the opportunity to be the rescuer, discuss any problems or incorrect techniques that were observed. Explain how to avoid the problems in disaster situations.<br><br>**SUMMARY AND TRANSITION** |
| **?** *Discussion question.* | ▪ Ask if anyone has any questions about the correct procedures for splinting.<br><br>▪ Tell the group that the next section will address treatments for hypothermia and frostbite. |
| **YOUR NOTES:** | |

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|

*Total Topic:*
*5 minutes*

*Participant Handbook, page PH IV-30.*

## TREATING HYPOTHERMIA

- Explain that hypothermia is a condition that occurs when the body temperature drops below normal.
- Tell the group that hypothermia may be brought on by exposure to cold air or water or by inadequate food combined with inadequate clothing and/or heat, especially in older people.
- Point out that the primary signs and symptoms of hypothermia are:
  - A body temperature of 95° Fahrenheit (37° Celsius) or less.
  - Redness or blueness of the skin.
  - Numbness accompanied by shivering.
- Add that in later stages, hypothermia will be accompanied by:
  - Slurred speech.
  - Unpredictable behavior.
  - Listlessness.
- Explain that since hypothermia can set in within only a few minutes, participants should treat victims who have been rescued from cold air or water environments by:
  - Removing wet clothing.
  - Wrapping the victim in a blanket or sleeping bag and covering the head and neck.
  - Protecting the victim against the weather.
  - Providing warm, sweet drinks and food to conscious victims. Do not offer alcohol or massage.
  - Placing an unconscious victim in the recovery position.
  - Placing the victim in a warm bath if the victim is conscious.

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| | **TREATING HYPOTHERMIA** (Continued)<br><br>Do not allow the victim to walk around even when he or she appears to be fully recovered. If the victim must be moved outdoors, cover the victim's head and face. |
|  <br>*Total Topic: 5 minutes*<br><br>  <br>*Participant Handbook, page PH IV-31.* | **TREATING FROSTBITE**<br><br>▪ Tell the group that frostbite is caused by a constriction of the blood vessels in the extremities as the body acts to maintain warmth in the vital organs.<br><br>▪ Point out that frostbite occurs on areas of skin exposed to freezing or below-freezing temperatures or wind chill, and on the extremities even if they are covered.<br><br>▪ Explain that the main symptoms of frostbite include:<br><br>• Coldness, stiffness, and a "prickly" sensation.<br>• Hardness of the skin.<br>• Bluish-white discoloration of the affected areas.<br><br>▪ Further explain that victims with frostbite can be treated by:<br><br>• Transporting the victim to shelter as soon as possible.<br>• Removing clothing and jewelry from the affected areas.<br>• Warming the frostbitten areas with skin-to-skin contact. Do not warm the area slowly by massage or by placing the victim in front of a heat source.<br>• Elevating frostbitten extremities above the level of the chest to reduce pain and swelling. |

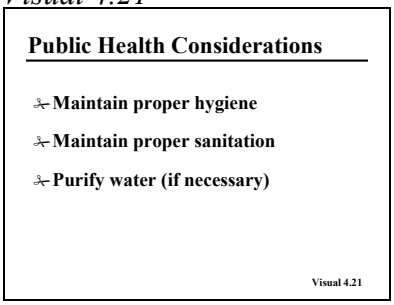
| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| | **TREATING FROSTBITE** (Continued)<br><br>▪ Point out that some victims of frostbite may develop blood blisters. Caution the participants not to break the blisters.<br><br>**SUMMARY AND TRANSITION** |
| **?** *Discussion question.* | ▪ Ask the group if anyone has any questions about disaster-related injuries.<br><br>▪ Transition to the next section by explaining that conditions are rarely ideal under disaster conditions, but there are some factors that CERT members must consider to keep conditions within the treatment area from causing or becoming a public health hazard. |
| **YOUR NOTES:** | |

## INSTRUCTOR NOTES

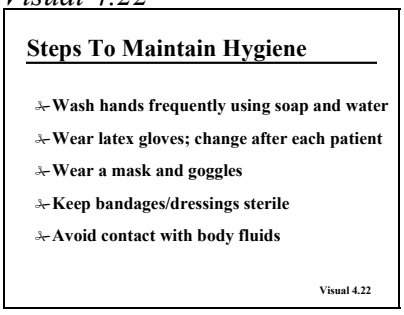
*Total Topic: 5 minutes*

*Participant Handbook, page PH IV-32.*

*Visual 4.21*




*Visual 4.22*




## CONTENT/ACTIVITY

### PUBLIC HEALTH CONSIDERATIONS

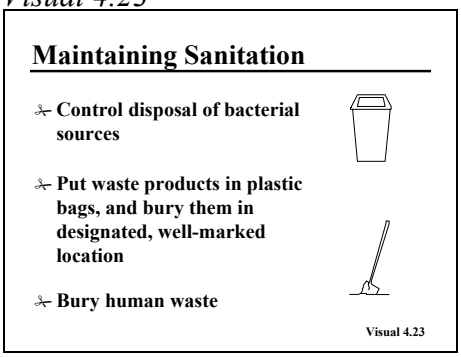
- Remind the group that when disaster victims are sheltered together for treatment, public health becomes a concern. Measures must be taken, both by medical workers and programmatically to avoid the spread of disease.
- Explain that the primary public health measures include:
  - Maintaining proper hygiene.
  - Maintaining proper sanitation.
  - Purifying water (if necessary).

**MAINTAINING HYGIENE**

- Tell the group that maintenance of proper hygiene is critical even under makeshift conditions. Some steps that individual workers can take to maintain hygiene are to:
  - Wash hands frequently using soap and water.
  - Wear latex gloves at all times. Change gloves after examining and/or treating each patient. As explained earlier, under field conditions, workers can use rubber gloves that are sterilized between victims using bleach and water (1 part bleach to 10 parts water).
  - Wear a mask and goggles.
  - Keep dressings and bandages sterile.
  - Avoid contact with body fluids.
- Stress the importance of practicing proper hygiene techniques even during exercises.

## INSTRUCTOR NOTES

*Visual 4.23*




*The bleach/water ratios are:*

- *16 drops of bleach per gallon of water.*
- *1 teaspoon of bleach per 5 gallons of water.*

*Stress that only prescribed amounts of bleach should be used.*

## CONTENT/ACTIVITY

### MAINTAINING SANITATION

- Caution the group that poor sanitation is also a major cause of illness, disease, and death. CERT medical operations personnel can maintain sanitary conditions by:
  - Controlling the disposal of bacterial sources (e.g., latex gloves, dressings, etc.).
  - Putting waste products in plastic bags and burying them in a designated, well-marked location.
  - Burying human waste.
- Again, stress the need to practice proper sanitation even during exercises.

### WATER PURIFICATION

- Finally, point out to the group that potable water supplies are often in short supply or are not available after a disaster. Remind the group to purify water for drinking, cooking, and medical use by heating it to a rolling boil for 10 minutes, or by using water purification tablets or unscented liquid bleach. Also tell the participants that rescuers should not put anything on wounds other than purified water. The use of other solutions (e.g., hydrogen peroxide) on wounds must be the decision of trained medical personnel.

# DISASTER MEDICAL OPERATIONS

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| | **SUMMARY AND TRANSITION** |
| **?** *Discussion question.* | ▪ Ask the group if anyone has any questions about the public health considerations related to disaster medical operations.<br><br>▪ Stress that CERT members must use latex gloves, goggles, and a mask during all medical operations and that they must cover all open wounds as a main way of preventing the spread of disease. |
| **YOUR NOTES:** | |

## INSTRUCTOR NOTES

*Total Topic: 5 minutes*

*Participant Handbook, page PH IV-34.*

*Present key points.*

## CONTENT/ACTIVITY

### SESSION SUMMARY

- Congratulate the group on completing the disaster medical operations sessions. Remind them that they have learned an enormous amount about how to recognize and treat life-threatening and other common disaster-related injuries—and that they have proven their knowledge and skills in high-pressure exercises.

- Summarize the key points of this session:

  - Disaster medical operations include five subfunctions:

    - Triage
    - Transport
    - Treatment
    - Morgue
    - Supply

  - Head-to-toe assessments should be verbal and hands-on. Always conduct head-to-toe assessments in the same way—beginning with the head and moving toward the feet. If injuries to the head, neck, or spine are suspected, the main objective is to not cause additional injury. Use in-line stabilization and a backboard if the victim must be moved.

  - Treatment areas must be established as soon as casualties are confirmed. Treatment areas should be:

    - In a safe area that is close to, but uphill and upwind from, the hazard area.
    - Accessible by transportation vehicles.
    - Able to grow.

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|

**SESSION SUMMARY** (Continued)

- Burns are classified as first-, second-, or third-degree depending on severity and the depth of skin layers involved. Treatment for burns involves removing the source of the burn, cooling the burn, and covering it. For third-degree burns, always treat for shock.

- The main first aid treatment for wounds consists of:

  - Controlling bleeding
  - Cleaning
  - Dressing and bandaging

  In the absence of active bleeding, dressings must be removed and the wound checked for infection at least every 4 to 6 hours. If there is active bleeding, a new dressing should be placed over the existing dressing.

- Fractures, sprains, and strains may have similar signs, and diagnosis may not be possible under disaster conditions. Treat suspected fractures, sprains, and strains by immobilizing the affected area using a splint.

- To safeguard public health, take measures to maintain proper hygiene and sanitation, and purify water if necessary. All public health measures should be planned in advanced and practiced during exercises.

- Remind the group that there is much more to learn about medical operations than could possibly be presented in two 2½-hour sessions. Recommend strongly that the participants attend additional seminars that are offered through the American Red Cross or through community colleges.

| INSTRUCTOR NOTES | CONTENT/ACTIVITY |
|---|---|
| | **SESSION SUMMARY** (Continued)<br><br>▪ Remind the group also that disaster medical operations is a team effort and that, like all teams, they must practice together so that they can function as a team under pressure. Encourage the participants to attend exercise simulations whenever they are offered locally.<br><br>▪ Ask the participants to read and familiarize themselves with Chapter V: Light Search And Rescue Operations before the next session.<br><br>▪ Ask them to begin obtaining the search and rescue safety equipment that is listed in their Participant Handbook. All items must be acquired in time for Session VII.<br><br>▪ Thank all of the participants for attending the session and remind the group of the date and time of the next session, if necessary. |
|  *Participant Handbook, page PH IV-38.* | |
| **YOUR NOTES:** | |